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RESEARCH ARTICLE

Cognitive Theories of Depression in Online Peer Support Forums: Exploring the Cognitive Triad

Naomi Pierce and Mark Hoelterhoff

This paper explores peer communication in an online support forum for depression, through displays of Beck's cognitive triad. Theoretical semantic thematic analysis of the textual conversations of forum users generated preliminary information on the internet as a platform for the manifestation of depressive symptoms. The study consisted of a two-phase approach. Phase one looked for demonstration of the cognitive triad in user conversations. Phase two analysed how users depicted and responded to peer cognitive distortions, and will form a separate publication. Findings suggest that the cognitive triad is evident in the online textual communication of peer support group members. The practical applications and limitations of the research are discussed in terms of recommendations for future work.

Keywords: depression; cognitive theory; internet; social psychology; user behaviour; peer support

Introduction

Online peer support forums (OF) for depression provide a space for individuals to seek help and offer advice to others through the medium of the internet (Griffiths et al., 2012). Users typically join a forum as a member, to create text-based "posts", which can then be uploaded to a forum and read and responded to by other members. These forums can be visible to non-members visiting such sites, and so members typically use pseudonyms to communicate with others. Some forums feature moderators, whose remit extends to monitoring post content for issues such as suicidal ideation or encouragement, or abusive communication.

There is currently limited exploration of OF for depression, despite extensive use of the internet by individuals with depressive symptomatology as a self-help and support resource (Culjak, 2012). Peer support OFs are described as one of the primary services accessed online by those with depression (Chang, 2005) with Hegerl, Blume, and Rummel-Kluge (2011) reporting that OF are viewed as a supplementary resource to clinical care. Existing OF research focuses largely on determining the demographics of users and the efficacy of peer support for depressives through mostly quantitative methods (e.g. Griffiths et al., 2012; Morris, Schueller, & Picard, 2015). Such studies present mixed findings regarding the utility of OF, with Lawlor & Kirakowski (2014) highlighting the detrimental effects of overdependency, and Takahashi et al. (2009) reporting ease of use as a benefit for users.

A small number of studies highlight the need for further exploration of the experiences of OF users with depression. Horgan, McCarthy, and Sweeney (2013) found indication that an online environment allows users to receive emotional and social support through identifying with others experiencing the same symptoms. Breuer and Barker (2015) report mixed findings, with participants describing a reduction in depressive symptomatology over a ten-week period alongside concern over harming others or themselves because of OF interaction. Whilst further investigation is needed to determine whether OF environments reduce symptoms (Griffiths et al., 2012; Melling & Houguet-Pincham, 2011), access to appropriate networks for health discussion has been found to be important for illness recovery (Perry & Pescosolido, 2015), and so seeking social support may be viewed as a form of help-seeking behaviour. Use of an OF for this purpose reflects both the significance of the internet as a resource for mental health information (Powell & Clarke, 2006), and the utility of internet forums for providing support for depression (Savolainen, 2011).

Houston, Cooper, and Ford (2002) cite emotional support as the most popular reason for joining OFs, with individuals valuing the ability to help others through participation. Additionally, Breuer and Barker (2015) found being able to anonymously confide in strangers a benefit to users. Models of help-seeking behaviour for depression confirm both stigma and self-stigma as a barrier to seeking assistance offline (Wang, Peng, Li, & Peng, 2015). Corrigan, Druss, and Perlick (2014) highlight numerous other "person-level" barriers, including absence of support networks that encourage care seeking, low levels of mental health literacy and opinions of ineffectiveness of treatment in contributing to the appeal of the internet

as a form of support for such a population. Users of the internet for mental health problems are described as individuals with lower levels of social support (Ivanova, Lindner, & Dahlin, 2015), a median age of 40 years, more likely to be women and with high unemployment levels (Houston et al., 2002). However, a systematic review (Griffiths, Caele, Banfield, & Tam, 2009) found no definitive information on OF gender distribution, concluding that OF user ages commonly range between mid to late 20s and mid-40s. This lack of consensus highlights the need to identify the socio-economic demographics of forum users.

The OF have been found to be efficacious for delivering Cognitive Behavioural Therapy for depression (e.g. Perini, Titov, & Andrews, 2009; Ruwaard, Lange, Schriecken, Dolan, & Emmelkamp, 2012). Horgan & Sweeney (2010) report that online self-help for depression was found to be viable for a young adult age group, with many of these communities evaluated as being part of professionally led interventions (Eysenbach, Powell, Englesakis, Rizo, & Stern, 2004). The success of “purpose-built” OF environments to collect data are consequently not representative of the more naturalistic environment of peer led OFs, membership of which involves no formal recruitment process. The presence of untreated depression within these naturalistic communities (Powell, McCarthy, & Eysenbach, 2003) is acknowledged. However, OF user discussion of their experiences of depression warrants further investigation, particularly when considering the potential of online chat communities to alleviate depressive symptoms (Shaw & Gant, 2002).

Beck's cognitive triad (1976) describes how depression impacts the three elements of an individual's belief system to produce pessimistic and illogical thoughts about the self, the world and the future, exemplified as “I have no worth”, “I am ignored by everyone”, and “My life is going to get worse” respectively (Beck, 1979a). Little work exists examining the way these cognitive symptoms of depression are displayed online. It is therefore unclear how these cognitive functions of depression are displayed within the interactive (Griffiths, Reynolds, & Vassallo, 2015) environment of the OF. The present study reports how a group of OF users demonstrate the cognitive triad (Beck, 1976) aspect of Beck's cognitive theory of depression (1974) in their communicative posts with each other.

Method

Ethics

Psychological research using internet data is a growing field, offering advancement in both translational and phenomenological research (Gosling & Mason, 2015); however there is extensive debate on the ethical status of such work. There is precedence that forums such as the one used in the present study are generally perceived as public by their users (Walther & Boyd, 2002), however the absence of standardised guidance regarding the need to obtain informed consent in these situations is debated by researchers (e.g. Hooley, Wellens, & Marriott, 2012). University research ethics committee (REC) approval was sought and obtained before commencing data collection.

Data collection

Participant data was collected through a popular online discussion forum for users with mental health problems. Due to both the anonymous nature of the OF, and the need to protect participant identity, no gender, age, or location restrictions have been enforced; instead the study sample uses engagement with the online forum for those with depression as the inclusion criteria. Participants were given pseudonyms using the first letter of their username, followed by either the number 1, 2, or 3. Frequency of users' posts onto the forum are noted in **Table 1**.

The OF used in the current study was chosen at random from the top ten Google search results using the term “mental health forums”. This method of site selection was used to ensure that data came from a sufficiently popular and topically broad-ranging website. The website organises sub-forums and discussion groups by diagnosis, with data collected from a sub-group of individuals with either a formal or self-diagnosis of depression. The OF allows users to communicate with each other in the form of “posts” which collectively become conversations of user-generated content. Data collection was limited to reviewing conversations active in 2015 to ensure that only contemporary conversations were captured. Ten of these conversations with more than one user post were chosen at random from a total of 172, (comprising of 552 individual posts), to constrain the data corpus to a manageable size. A total of seventy individual posts, generated by twenty-two unique users formed the final dataset. The transcript of each conversation was numbered from 1–10 (i.e. TS4) to organise the data corpus prior to analysis. It is not assumed that all participants had a formal diagnosis of depression, instead it is accepted that a variety of formal, self-diagnosis and comorbidity is present within the study sample.

OF posts, as existing text available via the internet, function as secondary data in the context of the present study. It is recognised that within the intended purpose of the forum, all text generated remains primary data. Similarly, OF text may serve as primary data within studies that generate this data for the explicit purpose of research, as demonstrated by Titov (2011).

Analysis

Data was analysed using a deductive thematic analysis (Diesing, 1971) methodology, approaching data semantically (Boyatzis, 1998) to investigate the presence of Beck's cognitive triad (Beck, 1976). Within the present study, constructions of meaning are situated within a cognitive psychology paradigm and a realist epistemology. It is therefore accepted that whilst an external reality exists, personal experiences are the subjective result of cognitive processing (Mahoney, as cited in Clark, Beck, & Alford, 1999). Braun and Clarke's (2006) six step model of thematic analysis informed data analysis. The first stage of familiarisation with the data was realised through repeated re-reading of the data set once transcribed. The second stage comprised of identifying preliminary codes, where potentially relevant aspects of the data were manually coded for relevance to expressions of negative thoughts. The third stage utilised NVivo qualitative data analysis software

Table 1: Participant frequency of posts with the cognitive triad main theme.

Pseudonym	Negative Self	Negative World	Negative Future	Total number of posts contributed to cognitive triad	Total number of posts overall
A2		1		1	2
A1	1			1	10
B3		1		1	1
C2		2	1	3	3
C3	1	1	1	3	6
E1	3	2	1	6	11
F1	3	3	1	7	8
H1		1		1	1
J1	1	1	2	4	4
L2	1			2	2
N1	1			1	1
N2	1	1	1	3	3
O1	2			2	8
P1	1	1	1	3	1
H1	1	2		3	3
C2		1		1	1
R1		1		1	1
S4			1	1	1
T1		1		1	1
V1		2		2	2
W1	1			1	1
Total	17	21	9	47	70

for Mac, whereby transcriptions were uploaded to the program. Three thematic ‘nodes’ were then set up within NVivo, to correspond to each facet of the cognitive triad: the self, the world and the future. The dataset was again reviewed, and extracts of data were allocated across the three ‘nodes’ as perceived appropriate by the researcher. In stage four, the content of each cognitive triad ‘node’ was revised to ensure that the data accurately corresponded to the respective facet of the cognitive triad. This stage also involved re-reading the dataset, and discussion with the researcher’s dissertation supervisor to confirm that identified themes were an appropriate representation of the meaning evidenced within the dataset. Stage five included naming main themes as facets of the cognitive triad. The main themes are therefore listed as the facets of Beck’s cognitive triad (1979b): negative view of the self, negative view of the world and negative view of the future. This method allowed for evaluation of OF text to be examined for specific evidence of the cognitive triad (Beck, 1976) in user’s posts. For example, an OF user may describe a minor problem they encounter as evidence of the negative world. These aspects of participant’s talk were interpreted as evidence of their thinking style reflecting the cognitive triad, and were coded accordingly, allowing the data to support the selected themes (Guest, MacQueen, & Namey, 2012). Stage six involved the production of this report.

Results and Discussion

The three facets of Beck’s cognitive triad (1979b) were present within the OF. Negative views of the world were depicted by fifteen participants ($n = 15$), the negative self

was demonstrated by thirteen participants ($n = 13$), with the negative views of the future being depicted by the smallest group ($n = 8$).

The Negative Self

Thirteen participants within nine online conversations referred to the negative self, reporting both the physical and mental experience of depressive symptoms.

Participants referred directly to feeling worthless and lacking reasons to live, with some doubting whether they truly were unwell. Participant O1 demonstrates a narrative of ambivalence towards the authenticity and the severity of their depression. Similarly, participant H1 believes that they have fabricated their own depression, criticising themselves for feeling unwell and failing to fully accept their condition, saying that “I often think that there’s nothing wrong with me and that it’s all in my head” (H1: 1–2, TS10). This concern that H1 may have fabricated their condition may suggest a maladaptive form of coping in which the individual attempts to avoid their illness in favour of carrying on as usual. Orzechowska, Zajęzkowska, Talarowska, and Gałęcki (2013) evidence that depressed individuals use strategies comprising of denial to cope with stressful situations. As a coping strategy, disengagement (i.e. avoidance and denial) has been shown to enable maladaptive schemas to function, resulting in distress (Camara & Calvete, 2012).

In contrast, other participants indicated acceptance of their depression in an interpersonal context, leading to negative interpretation of their social difficulties in relation to their condition. Global statements were made by

several participants that evidenced a belief in their lack of the personal traits necessary to feel happy (Beck, 1976). These pertained to minimal engagement in social contact with others, as expressed by J1: "I can't connect human to human and not only do I not really want to anymore, I can't" (J1: 6–7, TS8). Such social disconnectedness is both a symptom and risk factor for depression (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006).

Participant S2 refers to a potential comorbidity when describing themselves as defective, going on to detail their involvement in inappropriate sexual activity with a close relative. This description functions as an anecdote, with S2 positioning themselves as both socially dysfunctional and self-critical: "I have moderate-severe social anxiety, and crippling depression" (S2: 2, TS1).

S2's self-definition self-deprecates, and cites their anxiety and depression as a justification or consequence of their sexual indiscretion. Whilst the intended functions of S2's statement cannot be confirmed, it is clear that they feel their mental health is a significant contributory factor. It is possible S2's statement is a global attribution of their failings in maintaining both mental health and proper socio-sexual boundaries; this is later emphasised when S2 goes on to discuss their feelings of "guilt and shame". S2 credits their family as a supportive influence: "my parents and psyche (*sic*) were completely understanding and encouraged me to move on" (S2: 42–43, TS1). However, they continue to negatively evaluate their situation: "I'm at my wits end here, I think about suicide a lot now because I don't see myself coming back from this" (S2: 44–46, TS1). Evidence suggests that such negative evaluations are linked to increased reporting of negative life events (Safford, Alloy, Abramson, & Crossfield, 2007). It suggests that depressed individuals experience increased negative events as part of the mood-congruent social environments they develop and sustain (Monroe, Kupfer, & Frank, 1992). These theories may have relevance in the case of participant S2, as they harbour a fixed interpretation of their actions as the origin of their depression. Positive correlations between negative appraisal of memories and symptoms of depression are reported by Starr and Moulds (2006), suggesting that S2's focus on negative memories may contribute to their low mood.

Participants demonstrated negative conceptions of the self in relation to social and personal difficulties (Vollmayr & Gass, 2013), although whether such attributional behaviour is a cause or symptom of depression is contested (Augoustinos, Walker, & Donaghue, 2006). It is interesting that participants described anti-social behaviour in offline scenarios, yet felt able to converse with others when online. The remote format of the internet enables sharing of experiences with peers (Stjernswärd & Östman, 2006) and may appeal to depressed individuals when other forms of social engagement seem difficult (Barney, Griffiths, & Banfield, 2011; Frye & Dornisch, 2010). The ambivalence expressed by some participants regarding socialisation could be explained within this context, in that belonging to a virtual group with like-minded others is more attractive than real-life interaction. The anonymity afforded by OF environments enables personal information to be confidentially shared (Breuer & Barker, 2015),

and may also allow individuals to mediate any stigma or self-stigma that may act as a barrier to accessing other forms of care (Wang et al., 2015).

The Negative World

Negative worldviews were presented in nine conversations by fifteen participants within the data set. Content was largely related to social (e.g. relationships) and institutional (e.g. religion) conceptions of the world, as sources of dysfunction and rejection. Participant E1 discusses religion as a potential cause of depression: "I would go out as far as to say that 'praying' can be a cause of depression because it's a value system that doesn't reinforce the individual" (E1: 2–3, TS4). This statement suggests a possible rejection of the external locus of control often associated with prayer and religion, where prayer may consist of asking for assistance from God with problems an individual is experiencing, rather than actively seeking a solution by themselves (Greenwood, 2013). When attempting to understand such references to religion as a contributor to mental illness, a dichotomous conception of locus on control (LOC) may be overly simplistic (O'Hea et al., 2009). LOC studies including the provision of a God LOC suggest health benefits to such a belief (Ryan & Francis, 2012), with depression reported more frequently in those who are not affiliated with a religion (Baker & Cruickshank, 2009).

Participant P1 describes depression as enabling sufferers to access a truth not available to all, saying that "people say depressed people sometimes have a false sense that they can now see the world...maybe it is non depressed people who have the wool over their eyes" (P1: 13–15, TS7). Such thoughts may act as both a coping mechanism and a justification for depressive behavioural responses of passivity, hostility and anxiety (Henkel, Bussfeld, Möller, & Hegerl, 2002). Additionally, whilst it is possible for individuals who are not depressed to make such statements, arguably P1's assertion here functions to position individuals with depression as possessing distinct abilities in how they view the world, and possibly suggests that this difference is beneficial. Within the same conversation, participant T1 explains deviancy as an effect of emotional pain. This statement suggests an association of mental illness with wrongdoing: "Most of the 'evil' in the world is actually people who are dysfunctional and crazy and in pain doing crazy terrible things" (T1: 25–26, TS7). It is not possible to determine whether this behaviour indicates non-impaired theory of mind in depressed individuals; although it may suggest empathic thinking, the relationship between depression and empathy remains unclear (Schreiter, Pijnenborg, & aan het Rot, 2013). Viewing the world as a hostile environment may cause a perception of negative events as stable and global (Rood, Roelofs, Bögels, & Meesters, 2012), reflective of perceived problems within society.

The negative world component of the triad is present as participants make sense of the world in the context of their experience of depression. Religion and consumerism are viewed as problematic value systems, and allude to participants' desire to make sense of the world by accounting for their low mood. Describing depression

to access truth and meaning is suggested as a way for participants to mediate the discomfort associated with holding a negative worldview.

The Negative Future

Negative future belief, defined as a pessimistic view of personal future, was displayed by eight participants in four OF conversations. Participants discussed being unable to imagine themselves free from depression in any type of situation. Fixation on a future defined by a lack of positive thoughts is associated with both low mood and suicidal behaviour (O'Connor, Smyth, & Williams, 2015) and is archetypal of impaired positive future thinking. Discussions referred to the temporality of life, with death portrayed as an "inevitable" event. Participant C3 expresses fatalistic sentiments, and their perception of life as futile: "I just can't see any point in going on if I'm going to die one day, what's the point" (C3: 4–5, TS3). Participant P1, who rejects attempting recovery also presents fatalistic beliefs and states: "It just feels like working hard just so I don't feel even worse is not worth it anymore, especially when I am only delaying the inevitable" (P1: 9–10, TS7). Both P1 and C3 appear to demonstrate a fixation on death that problematises their motivation to live. Participant S1, also reports an excessive focus on the temporal nature of life as they "get so depressed about (my) ever shorter life here. And that it's all so temporary" (S1: 22, TS3). Intensity of fear of death is suggested to moderate symptoms of depression (Besser & Priel, 2005), with the symptoms S1 reports experiencing, potentially indicating a heightened fear of death.

Demonstrating a similar belief in a future without recovery, F1 is unable to imagine themselves free from depression, outlining a hypothetical situation in which "I could have everything in the world and still be miserable because my brain is ####\$ (sic)" (F1: 26–27, TS5).

The fatalistic talk of participants in relation to death is suggested as withdrawal behaviour in several studies. Hayes, Ward, and McGregor (2016) note that participants with less life satisfaction have a decreased desire for life in a test situation where their perceptions of death and the dying process were measured. Whilst belief in good luck and optimism has been shown to share a significant negative relationship with depression (Day & Maltby, 2003), fatalistic talk is linked to stress relief and uncertainty management, emphasising the complexity of the relationship between thinking style, beliefs and health outcomes (Keeley, Wright, & Condit, 2009). It may therefore be suggested, that participants evidencing fatalistic talk are engaging in complex self-management of anxiety relating to death.

Conclusion

The research aimed to explore peer dialogue in OF in the context of Beck's cognitive model of depression (1974), specifically Beck's cognitive triad (1976) within OF conversations. The use of the internet as part of self-help and formal treatment is a valuable and growing area of research. Despite this, the author is not aware of any existing studies exploring manifestation of cognitive theories of depression in an online community setting in a sample

of depressed individuals. As such, the present study represents preliminary research in exploring how Beck's cognitive triad (1976) is manifested in an online self-help context. Observations of the cognitive triad indicate the use of the remote, peer facilitated forums by participants to express their self-reported depressive symptoms and converse with similar others in an anonymous format. In summary, the dialogue of participants within an online forum environment is richly complex, and potentially functioning as both communicative and expressive talk. This exploration of the cognitive triad within a small group of forum users highlights how an online format enables information sharing and discussion, and how cognitive theories of depression may be used to interpret this dialogue.

Applications

Online self-help forums for depression have the potential to be a positive resource for individuals, in that regular use of OF may act as a form of diary. The ability for this to allow patients to monitor their moods and concerns over the course of their depression, by looking at forum logs of their conversations, may provide further self-management benefit. Additionally, the ability to communicate with a wide range of peers in an easily controlled virtual environment may benefit those who wish to engage in activities as an adjunct to formal care, and as part of an agreed treatment program with their healthcare provider.

Limitations

There are several limitations that should be considered in line with the findings of the research. No claims of generalisability are made in relation to the findings of the present study, due to use of a small sample size and cross sectional data. Additionally, all data was coded and assigned to facets of the negative triad by the first author, with consultation provided by the second author. No inter-rater reliability exercises took place, however the first author kept a reflexivity journal throughout the research. Due to these limitations, the subjectivity of the interpretations and discussion provided in this paper is acknowledged.

It is possible that a range of condition severity and comorbidities existed within the sample, with insights generated from the dataset possibly complicated by this. However, the comorbidity of depression and other health conditions ranges from 9–23% (Moussavi et al., 2007) indicating that any comorbidities within the study sample are also represented at population level. Native language, proficiency with computer technology and writing ability are all accepted to affect the data and subsequent analysis. This could potentially be addressed in future research by using standardised measures of cognitive distortions, e.g. the Cognitive Distortions Scale (Briere, 2000) alongside qualitative analysis. Finally, it is accepted that those with depressive symptoms may favour using online facilities due to the controllability and low social expectations of the environment (Takahashi et al., 2009). However, remote interaction with peers may encourage social isolation, negative rumination and depression itself, with the potential for internet addiction in the study sample to confound observations (Bermas,

Ghaziyani, & Ebad Asgari, 2013). The effect of these phenomena on the present study's data is not known, and in using a non-clinical sample the presence of these complex factors are accepted.

Future research

Potential directions for further investigation include the addition of participant interviews into the study design, allowing for the experiential nature of online communication for individuals with depression to be captured. The use of multiple forum websites to collect data may also be useful in generating a larger dataset and ensuring participant diversity. Finally, to determine the potential for online forums to benefit individuals in a clinical sample, those with a formal diagnosis of depression could potentially be recruited into studies of a pre-and post-measurement design. Such further investigation may generate empirically based recommendations for the usage of online forums appropriate for the varying levels of severity of depression.

Competing Interests

The authors have no competing interests to declare.

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